CLAIMS

1. An image recognition apparatus for recognizing movements of players matched against each other between
5 domains partitioned with such an obstacle as net in a sport match or game from contents including a television program being telecasted to show the sport match or game, an image material in an uncompleted state for broadcasting and contents recorded in such a recording medium as a VTR, the image
10 recognition apparatus comprising: a score information obtaining section configured to obtain score information indicative of scores of the respective players which vary as the sport match or game proceeds; a play event information obtaining section configured to obtain play event information
15 indicative of a characteristic movement of each of the players from picture information included in the contents, the picture information containing images of respective of the obstacle and the players, the score information displayed on a screen, and like images; and an image substance recognizing section
20 configured to make a comparison between a score information item obtained immediately before a point in time of generation of the play event information and a score information item obtained immediately after the point in time and make reference to a result brought by the play event information,
25 thereby recognizing a substance of an image provided by the play event information.

2. The image recognition apparatus according to claim 1, wherein the score information obtaining section is configured to obtain the score information from at least one of the picture information included in the contents, sound

5   information including commentary voice of a commentator, and data information transmitted as multiplexed on radio waves during broadcasting.

3. The image recognition apparatus according to claim 1 or 2, further comprising: a domain element extracting

10   section configured to extract from the picture information facility information including information on the obstacle, information on the domains and information on boundary lines between the domains and an area outside the domains, player's position information indicative of a player's position, and

15   instrument information on an instrument moving between the domains to serve as an object of score count in the sport match or game; rule information storage section configured to store rule information on the sport match or game; and basic movement storage section configured to store basic movement

20   information on players' characteristic movements generalized in a sport of concern, wherein the play event information obtaining section includes a play event information determining section configured to determine a play event information item on a play event characteristic of each of the

25   players included in the picture information as the play event information based on domain elements extracted from the

picture information, the rule information, and the basic

movement information stored in the basic movement information

storage section.

       4. The image recognition apparatus according to

5   claim 3, wherein the player's position information is position

information indicative of a domain containing each of the

players and the instrument constantly held and used by the

player.

       5. The image recognition apparatus according to

10   claim 3 or 4, wherein the domain element extracting section is

configured to extract the player's position information from

the picture information based on the facility information

extracted by the domain element extracting section.

       6. The image recognition apparatus according to any

15   one of claims 3 to 5, wherein the domain element extracting

section is configured to extract the instrument information

from the picture information based on the facility information

and the player's position information extracted by the domain

element extracting section.

20   7. The image recognition apparatus according to any

one of claims 3 to 6, wherein the play event information

obtaining section includes a play event index information

output section configured to output plural play event

information items determined by the play event information

25   determining section as arranged in a time sequence.

       8. The image recognition apparatus according to

claim 7, wherein the play event index information output

section is configured to output the play event information

items together with instrument information items in a time

sequence.

5   9. The image recognition apparatus according to any

one of claims 3 to 8, wherein the facility information, the

player's position information, the instrument information and

the rule information are based on knowledge about a sport as a

subject for image extraction.

10   10. An image recognition program cooperative with a

computer for causing an image recognition apparatus to operate

to recognize movements of players matched against each other

between domains partitioned with such an obstacle as net in a

sport match or game from contents including a television

15   program being telecasted to show the sport match or game, an

image material in an uncompleted state for broadcasting and

contents recorded in such a recording medium as a VTR, the

image recognition program being configured to cause the image

recognition apparatus to function as: a score information

20   obtaining means configured to obtain score information

indicative of scores of the respective players which vary as

the sport match or game proceeds; a play event information

obtaining means configured to obtain play event information

indicative of a characteristic movement of each of the players

25   from picture information included in the contents, the picture

information containing images of respective of the obstacle

and the players, the score information displayed on a screen, and like images; and an image substance recognizing means configured to make a comparison between a score information item obtained immediately before a point in time of generation

5   of the play event information and a score information item obtained immediately after the point in time and make reference to a result brought by the play event information, thereby recognizing image contents of the play event information.

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